COMMERCIAL PARTNERS

Charles Sturt University

MEAT & LIVESTOCK AUSTRALIA

New treatment for Perennial Ryegrass Toxicity (PRGT)

Charles Sturt University (CSU) and Meat and Livestock Australia (MLA) have partnered and identified a potential preventative and treatment for Perennial Ryegrass Toxicity

Background

Perennial ryegrass 'staggers' (PRG 'staggers') can be a serious problem in livestock grazing perennial ryegrass dominant pastures, particularly in Tasmania and Southern Victoria. The financial impact of perennial ryegrass 'staggers' was calculated by Sackett et al to be approximately $64.7 million in 2006[1], sub-clinical production losses not included. In 2012, the costs of PRGT estimates were revised to $71.4 million. PRG 'staggers' is caused by the combined actions of a number of toxins: the primary toxins are lolitrem B, a potent neurotoxin responsible for the severe neuropathology associated with this syndrome; and ergovaline, an ergot alkaloid that causes subclinical heat stress. Currently, there is no specific preventative or treatment for PRGT except avoiding the toxic pastures which can be difficult as rye grass is prevalent in the affected regions with perennial ryegrass (Lolium perenne) being the most commonly sown pasture grass in Australia, occupying over six million hectares, with four million hectares in Victoria alone.

Perennial ryegrass infected with endophytes can produce higher yields, be resistant to insect attack and be more persistent. However, alkaloids including ergovaline and lolitrem B produced by the endophytes cause significant detrimental animal production effects in livestock when alkaloid levels exceed critical levels, typically in late summer and autumn. Sheep and beef producers with high endophyte perennial ryegrass pastures are at risk of experiencing production losses. Consumption of high levels of alkaloids can cause decreased feed intake, lower production and weight gain, heat intolerance, ill-thrift, scours, changes in behavior, staggers, poor fertility, neonatal losses and poor milk production.

In severe outbreaks, significant deaths may occur and major disruptions to management causing additional financial losses. Serious incidents of rye grass 'staggers' have resulted in devastating animal deaths of up to an estimated 100,000 sheep and 500 cattle in Victoria alone in a year.

New treatment for Perennial Ryegrass 'staggers'

Whilst expectations of a single treatment being effective against all toxins is unrealistic, an effective treatment against the neurotoxicity associated with ingestion of toxic perennial rye grass has been identified and evaluated as effective in sheep. By combating the main toxin responsible for the neurological signs in this disorder, it may be possible to reduce the overall impact of PRG 'staggers' on the Australian flock.

CSU and MLA have identified and conducted the initial trials for a compound which could be used as a preventative and/or treatment of perennial rye grass in livestock. Initial trials have been completed in mice and sheep. A PCT patent application has been lodged.

Opportunity

Interest is being sought from partners for further investment and licensing for this potentially new PRGT preventative / treatment.

[1]Sackett D, Holmes P, Abbott K, Jephcott S, Barber M (2006) 'Assessing the economic cost of endemic disease on the profitability of Australian beef cattle and sheep producers.' MLA report AHW.087. (MLA: Sydney)

To explore this opportunity in more detail, please contact:

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